AUSTRALIAN PLANT DISEASE RECORDER

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For confidential circulation to plant pathologists in Australia.

PLEASE DO NOT ABSTRACT

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FIELD CROPS AND PASTURE PLANTS

INFLORESCENCE SMUT OF BOTHRIOCHLOA:

Recently, specimens of a smut on Bothriochloa decipiens (Hack.) C.E. Hubbard were received from the Albury district of N.S.W. The complete inflorescence was replaced by a smut sorus which was covered by a peridium of fungal cells and had a central columella of host tissue. The smut was at first identified as Sphacelotheca amphilophis Syd., which had been recorded from N.S.W. by Sydow (Ann.Mycol. 35: 25, 1937) and several specimens of which occur in the Biology Branch Herbarium. However, examination of young sori and of the lower parts of more mature sori showed that spore balls were present and that the fungus concerned is a Sorosporium. Examination of other specimens filed in the herbarium under the name Sphacelotheca amphilophis, including the specimen originally examined by Sydow, has shown the presence of spore balls in lower parts of the sori.

It thus appears that many of the specimens of smut on B. decipiens in N.S.W. identified as Sphacelotheca amphilophis are in fact a species of Sorosporium. Whether Sphacelotheca amphilophis, originally described from the Transvaal, South Africa, is itself a Sorosporium would require an examination of the type material to decide. Further investigations on this interesting problem are being made.

J. WALKER

Department of Agriculture,
SYDNEY.

DISEASES OF WHITE CLOVER:

In recent weeks several specimens of different varieties of white clover have been found in coastal districts infected with a rust occuring in the teleutospore stage only in sori mainly confined to the petioles and midribs of the leaves. A similar rust was first observed in N.S.W. ten years ago on a plant growing in the Royal Botanic Gardens, Sydney, and found to agree with the description of Uromyces nerviphilus. The more recent specimens, although showing less distortion than the original one, can be assigned to the same fungus if one is confident in accepting the negative criterion of the absence of the uredospore stage.

A close examination of these specimens revealed the presence of other diseases and provided the first records for N.S.W. of Pseudopeziza trifolii and Stemphylium sarciniforme on white clover.

A.M. SMITH

Department of Agriculture,

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A.M. SMITH

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VEGETABLES

RESISTANCE TO FUSARIUM WILT IN PISUM SATIVUM L:

Early in 1958, a breeding programme was begun to incorporate resistance to Fusarium oxysporum pisi race 2 into several commercial varieties of P. sativum. Using the back-cross technique and variety New Era as the donor of a single dominant gene for resistance to race 2 of Fusarium wilt, the programme at present includes the transfer of resistance to the varieties Greenfeast (N.Z. strain, already resistant to race 1), Victory Freezer (syn. Kelvedon Monarch), and William Massey (syn. Kelvedon Wonder).

A race 2-resistant strain of Greenfeast has been selected as a homozygous line from selfing the fourth back-cross, and this strain is at present being multiplied prior to preliminary field testing in 1962.

It is anticipated that resistant strains of Victory Freezer and William Massey will reach this stage one and three years later. respectively.

M.V. CARTER

Waite Agricultural Research Institute,

ADELAIDE.

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FRUIT

POSSIBLE INSECT TRANSFER OF SCALYBUTT (EXOCORTIS) OF CITRUS:

The use of certified scalybutt-free budwood for the production of reliable citrus trees on Poncirus trifoliata stock is possible because of the lack of field spread of this disease. However, a case of probable spread by a vector has recently been reported from California and several possible cases of insect transmission in N.S.W. have been noted (Plant Diseases Conference, Hawkesbury Agricultural College, 1955, Vol. 1, p.128). In March, 1961, a case of what may be insect transmission was seen in a Dooralong orchard involving a Valencia orange tree about 28 years old of good size and previously of good vigour. Growth had started normally in the spring, but before it had matured the foliage of one branch had wilted and yellowed. When examined most of the spring foliage of this branch was still adhering in an immature and semi-wilted state. The rest of the foliage was normal, the fruit also still adhering though only of pea size. Scaling of the stock was of a particularly severe type and had extended along the roots.

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SYDNEY.

DELAN FUNGICIDE:

A Promising Material for Disease control on Stone Fruits

A new fungicide, Delan, the active principal of which is Dithianon gave encouraging control of Pseudomonas syringae on Narrabeen plums and Taphrina deformans on Le Vainqueur peaches in the spring of 1960. The trial trees were located in an orchard at Wantirna South, on the outskirts of Melbourne.

Plums:

Delan W.P. was applied at 1 and 1½ lb./100 gallons to a randomised block (5 treatments, 3 replicates) of Narrabeen plums at the white bud stage (15/8/60), petal fall (5/9) and shuck fall (28/9). Weather conditions during this period were cool and rainfall was above average.

When the trees were in full bloom, brown rot infection occurred, but Delan, thiram and one other fungicide used, all gave a reduction of about 50% in blossom blight compared with an unsprayed tree.

On 28/9/60 considerable shotholing was evident on a number of trees. Since few of the leaves had fully expanded by this date, leaf sampling was delayed until 12/10/60. Leaves were sampled by picking 100 at random from each tree. The cause of infection was determined by Mr. Peter Jenkins of the Biology Branch, Department of Agriculture Burnley, as Pseudomonas syringae.

Leaves were examined and rated 0 to 4 according to the severity of the shotholing on each leaf, as follows:-

0 = no shothole,
1 = 1-6 holes,
2 = 7-12 "
3 = 13-20 "
4 = more than 20 holes.

A severity index was determined in the usual manner and the following results obtained:-

Treatment	Mean Severity Index
Delan 1½ lb./100 galls.	16
Delan 1 lb/.100 galls.	20
Thiram 1½ lb./100 galls.	41
Fungicide P.C. 1½lb./100 galls.	53
Fungicide P.C. 2 lb./100 galls.	42

L.S.D. 5% 6
1% 8

The severity index on a single unsprayed tree was 41.

The difference between the two rates of Delan was not obvious in the field, but the difference in appearance between trees sprayed with Delan and those sprayed with the other fungicides was striking.

As a result of this trial, Delan is considered to be worthy of further experiments on the control of Pseudomonas syringae and other bacterial diseases on fruit trees.

Peaches:

A randomised block 6 treatments, 5 replicates of Le Vainqueur peaches was sprayed with several fungicides on 15/8/60 when the trees were at an early bud burst stage - the first few signs of pink were showing. Shell endrin oil was applied with each fungicide to comply with the grower's wishes for aphis control.

On 28/9/60, the trees were approaching shuckfall and leaf curl was appearing On this day, the whole block was sprayed with thiram.

An estimate of leaf curl was made on 19/10/60 by counting the number of shoots with infected leaves per ten shoots selected at random on ten limbs round each tree. No attemps was made to account for the

severity of infection - shoots were classed merely as infected or healthy. Fungicides used and the leaf curl observed were as follows:-

Fungicide	% shoots infected with leaf curl/tree
Delan 1½ lb./100 galls.	1
6-4-40 Bordeaux mixture	3
Thiram 1½ lb./100	3
Bayer 4957 (CuOC1) 2½ lb./100 galls.	25
Schering's CuOC1 2½ lb.100/ galls.	27
Fungicide P.C. 2 lb.100/galls.	33

Two unsprayed trees nearby had an average of 44% infected shoots. Analysis of these figures was considered unnecessary, three fungicides being effective and three ineffective. However, the results for Delan, Bordeaux mixtures and thiram were analysed separately and although the difference was not significant by normal standards, there did appear to be about a 10 to 1 chance that Delan was superior to thiram and Bordeaux mixture in this experiment.

The evidence from this trial certainly suggests that Delan is worthy of further trial as a fungicide for control of Taphrina deformans.

Delan has also given excellent control of peach rust (Tranzschelia pruni-spinosae) in Victoria and New South Wales.

In view of the promise shown by this material against these three stone fruit diseases, and the fact that what little evidence is available so far suggests that it is effective against brown rot (Sclerotinia fructicola). Delan is considered worthy of trial as a fungicide for general use against all stone fruit diseases.

J.R. WARD

Henry H. York & Co. Pty. Ltd.,
Nunawading,
VICTORIA.

APPLE RING SPOT:

Specimens of fruit from Granny Smith Apple trees at Greenbushes are considered on a basis of symptoms to be infected with the apple ring spot virus disease described by Atkinson and others (N.Z. Jour. Sci. Tech. 35A. 478-482, 1954).

To date only two trees are known to carry such fruit, but a survey is planned to determine its incidence. There can be little doubt that the disease has been present for some time as trees have not been imported into Western Australia for many years.

H.L. HARVEY

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PERTH.

ORNAMENTALS

BLEEDING NECROSIS OF LIQUIDAMBAR.

A serious disease of established Liquidambar trees has been recorded relatively recently from a number of Sydney suburbs. Affected trees are mainly in street plantings and the chief symptom is profuse bleeding from the bark and from any injuries such as looping. Some trees have apparently been dying over a period of about six years interspersed with seasons of temporary recovery. The area of bleeding and necrotic tissue usually advances gradually up the trunk and into the limbs, but bleeding may break out at first 20 or more feet above ground level. Some specimens were observed which had died on one side only and in another the top was dead. These could, however, be expected ultimately to die completely.

A disease with similar symptoms has been present in the United States for many years, Botryosphaeria ribis being reported as the pathogen. The causal agent has not yet, however, been determined here and the writer would be pleased to receive information about any other records of apparently similar diseases of Liquidambar in Australia.

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